

List of Supervisors and Research Fields

Doctoral Course

Transdisciplinary Life Science Course, Division of Life Science

Laboratory	Supervisors		Research Topics
Bioinformation and Molecular Science	Professor Associate Professor	Min Yao Toyoyuki Ose	Protein, nucleic acid, transcription / translation control, disease related factor, signal transduction, infection regulation, X-ray structural biology, protein crystallography, computer science, protein science, biophysics, http://altair.sci.hokudai.ac.jp/g6/index-e.html
	Associate Professor	Ryota Uehara	Cell division, ploidy, cytoskeleton, motor protein, self organization, cancer, aging, liver disease, microscopic analysis, biochemistry, molecular biology, cell culture, mouse model, transcriptome, mathematical modeling, compound screen https://tenure-track.cris.hokudai.ac.jp/lab/uehara/
	Specially Appointed Lecturer	Shinji Nakaoka	mathematical biology, systems biology, bioinformatics, microbial ecology, precision medicine, multi-omics, mathematical modeling, machine learning, big data analysis http://altair.sci.hokudai.ac.jp/infmcb/index-e.html
Biomaterials Science	Professor Lecturer	Kenji Monde Tohru Taniguchi	Chemical Biology, Chirality, Organic Synthesis, Inhibitors, Vibrational Circular Dichroism, Helix, Lipid Mediator, Glycoconjugate, Medicinal Chemistry http://altair.sci.hokudai.ac.jp/infchb/
	Professor Associate Professor	Nobuyuki Tamaoki Yuna Kim	molecular machine, motor protein, photochromic compound, azobenzene, liquid crystal, self-organization, inter-molecular interaction, organic synthesis, nano bio-machine, single molecular measurement, chirality http://tamaoki.es.hokudai.ac.jp/english/index.html

Transdisciplinary Life Science Course, Division of Life Science

Laboratory	Supervisors		Research Topics
Functional Cellular Science	Professor Associate Professor	Tokiyoshi Ayabe Kiminori Nakamura	innate immunity, antimicrobial peptide, mucosal immunity, intestinal epithelial cell, Paneth cell, inflammatory bowel disease, defensin, molecular targeted therapy, stem cell, regenerative medicine, intestinal microbiota, life-style disease, food and medicine http://altair.sci.hokudai.ac.jp/infsig/english/
	Professor Lecturer	Masataka Kinjo Akira Kitamura	Fluorescence Correlation Spectroscopy, Fluorescence Cross Correlation Spectroscopy, single molecule detection, ALS, molecular interaction, Live cell imaging, FCS, FCCS http://altair.sci.hokudai.ac.jp/infmc/English/top_eng.html
Functional and Regulatory Life Science	Professor Professor	Shin-Ichiro Nishimura Hiroshi Hinou	Chemical biology, Medicinal chemistry, Glycomedicine, Automated glycosynthesis, Glycomics, Glycobiology, Biomarker discovery, Dynamic epitope, Glycopeptide, Antibody drug, Glycoconjugates probe, Microarray http://altair.sci.hokudai.ac.jp/g4/
	Professor	Toshiaki Koda	neurodegenerative disease, poly-glutamine disease, autophagy, model mice, embryonic engineering http://altair.sci.hokudai.ac.jp/infemb/index.html
Biomolecular Adaptation Science (Inter-field Cooperation with AIST)	Visiting Professor Visiting Professor Visiting Associate Professor Visiting Associate Professor	Sakae Tsuda Yasuo Komatsu Hidemasa Kondo Yu Hirano	Antifreeze protein, Ice-binding function, Snow mold fungi, Gene expression, Biomolecular NMR, X-ray structural analysis, Biodiversity, Cell-preservation peptide, Reporter Assay, 3D molecular structure, Gene detection, Nucleic acid drugs, Functional DNA/RNA, Molecular detection, Cell-function evaluation, Electrochemistry http://altair.sci.hokudai.ac.jp/g_renkei/top_e.html https://unit.aist.go.jp/bpri/bpri-bimo/research_kakusan.html
Frontier Biomaterials Science Inter-Field Cooperation with National Institute for Material Science (NIMS)	Visiting Professor Visiting Associate Professor	Nobutaka Hanagata Tomohiko Yamazaki	Nanomedicine, nanobiotechnology, nucleic acid drug, immune system, comprehensive gene analysis, nano particles, DNA delivery, nanotoxicity https://www.nims.go.jp/hokudai/index_en.html https://www.nims.go.jp/hokudai/research_seimei_en.html#course1pb

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List of Supervisors and Research Fields

Doctoral Course

Biosystems Science Course, Division of Life Science

Laboratory	Supervisors		Research Topics
Higher Order Cellular Functions	Professor	Kazuma Tanaka	cell polarity, phospholipid asymmetry, membrane traffic, flippase, yeast http://www.igm.hokudai.ac.jp/molint/index.html
	Professor	Tomomichi Fujita	plant, evolutionary development, stem cell, cell polarity, cell cycle, cell proliferation and differentiation, environmental stress, abscisic acid, moss, space utilization science http://www.sci.hokudai.ac.jp/PlantSUGOIne/
	Associate Professor	Masaaki Watahiki	auxin, feedback gene regulation, live imaging, plant morphogenesis http://www.sci.hokudai.ac.jp/watahiki/mkwhp/index.html
	Professor	Sanae M. M. Iguchi-Ariga	protooncogene, mutagen, oxidative stress, cancer, neurodegenerative disease, cellular and molecular biology, proliferation, transformation, apoptosis http://www.agr.hokudai.ac.jp/emolb/index.html
Environmental Life Science	Professor	Atsushi Kato	gene expression, genome evolution, non-coding RNAs, retrotransposon, heat stress, epigenetic effects, plants, arabidopsis http://www.sci.hokudai.ac.jp/grp/keitai/sci.hokudai/KeitaiIII_mail.htm
	Professor	Junji Yamaguchi	environmental adaptation, ubiquitin-proteasome system, nutrient metabolism, signal transduction, nutrient stress, plant immunity, proteomics http://www.sci.hokudai.ac.jp/CSF2-web/
	Associate Professor	Hidetaka Ito	plants, epigenetics, transposon, environmental stress https://www.sci.hokudai.ac.jp/Cellfunction_Structure3/
	Associate Professor	Yukako Chiba	mRNA stability, stress response, arabidopsis https://www.sci.hokudai.ac.jp/~yukako/
	Associate Professor	Ryouichi Tanaka	photosynthesis, chlorophyll, cyanobacteria, algae, higher plants, arabidopsis, plant molecular biology, plant biochemistry http://www.lowtem.hokudai.ac.jp/plantadapt/ayumi/

Biosystems Science Course, Division of Life Science

Laboratory	Supervisors		Research Topics
Animal Behavior and System Control	Professor	Makoto Mizunami	learning, olfaction, memory, insect, microbrain, neuroethology, physiology, genetics, pest control https://www.sci.hokudai.ac.jp/~mizunami/MICROB~2/ http://www.es.hokudai.ac.jp/labo/nishino/
	Professor	Hiroto Ogawa	brain, neuroscience, electrophysiology, imaging, information processing, neural circuit, coding, sensorimotor integration, insect https://www.sci.hokudai.ac.jp/~hogawa/index2.html
	Associate Professor	Kazuhiro Wada	vocal learning, critical period, epigenetics, neural activated gene, songbird, neuroethology, genome, behaviour, DNA methylation, stuttering http://www.wada-lab.org/
	Associate Professor	Masayo Soma	behavior, cognition, communication, bird song, learning, life history http://www.lfsci.hokudai.ac.jp/search/system/soma.html
	Associate Professor	Hitoshi Aonuma	Synthetic neuroethology, neurobiology, electrophysiology, biomechanics, robotics inspired biology, neurogenetics, neuromodulation, social behavior, aggression, ultra fast movement, insect http://ncmac2.es.hokudai.ac.jp/index.html
	Associate Professor	Nobuaki Tanaka	sensory processing, neuroendocrine system, Drosophila genetics, pygmy squid https://www.sci.hokudai.ac.jp/grp/tanaka/lab/index.html

Biosystems Science Course, Division of Life Science

Laboratory	Supervisors		Research Topics
Reproductive and Developmental Sciences	Professor	Yoshinao Katsu	endocrinology, steroid hormone, nuclear receptor, thermoreceptor, evolution, endocrine disruptor https://www.repdev-katsu.jp/index.html
	Professor	Asato Kuroiwa	sex determination, sex chromosome, X chromosome inactivation, fertilization, evolution, the spiny rat, chicken, quail, mouse https://sites.google.com/site/kuroiwa-group/home
	Associate Professor	Kazuhiro Kitada	model animals, human diseases, genome modification, gene function, mouse, rat https://sites.google.com/site/kitadalab/
	Associate Professor	Tomoya Kotani	oocyte, embryonic development, maternal factor, real-time imaging, zebrafish, mouse
	Associate Professor	Atsushi Kimura	transcription, epigenetics, gene regulation, long noncoding RNA, dual promoter-enhancer, reproduction, spermatogenesis, protease https://www.sci.hokudai.ac.jp/~akimura/Molecular/Welcome.APK.html
	Associate Professor	Katsueki Ogiwara	ovary, ovulation, follicle selection, endocrine regulation, mouse, zebrafish, medaka https://www.sci.hokudai.ac.jp/~kogi/Reproductive2/Welcome.html

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List of Supervisors and Research Fields

Doctoral Course

Biomedical and Pharmaceutical Science Course, Division of Science

Laboratory	Supervisors		Research Topics
Biochemistry	Professor Associate Professor	Akio Kihara Takayuki Sassa	lipid, membrane, biochemistry, metabolism, lipid mediator, barrier formation http://www.pharm.hokudai.ac.jp/seika/index.html
RNA Biology	Professor Lecturer	Shinichi Nakagawa Hiroshi Maita	noncoding RNA, epigenetics, nuclear structures, RNA processing https://sites.google.com/site/hokudairnabiologyj/home
Neuroscience	Specially Appointed Professor Associate Professor	Toshiharu Suzuki Hidenori Taru	neuroscience, cell biology, genetics, synapse, aging, protein trafficking, synaptopathy, neurodegenerative diseases http://www.pharm.hokudai.ac.jp/shinkei/index.html
Immunology	Professor Lecturer Lecturer	Tadashi Matsuda Ryuta Muromoto Junichi Kashiwakura	host defense, immunity, inflammation, infection, cytokine, oncogenesis, signal transduction http://www.pharm.hokudai.ac.jp/eisei/
Biomolecular Science	Professor Associate Professor	Katsumi Maenaka Kimiko Kuroki	immunology, infectious disease, cell surface receptor, X-ray crystallography, protein engineering, biologics, drug discovery, chemical library screening, in silico screening, virology, microbiology http://convallaria.pharm.hokudai.ac.jp/bunshi/
Natural Products Chemistry	Professor	Toshiyuki Wakimoto	bioactive natural products, isolation, structure elucidation, stereochemistry, structure-activity relationship, molecular targets, biosynthesis, drug leads, bioprobes http://www.pharm.hokudai.ac.jp/tennen/index.html
Fine Synthetic Chemistry	Professor Associate Professor	Yoshihiro Sato Yoshihiro Oonishi	organic synthesis, organometallic chemistry, transition-metal-catalysis, asymmetric catalysis, natural product synthesis, utilization of gaseous molecules, green chemistry http://gouka.pharm.hokudai.ac.jp/
Synthetic and Industrial Chemistry	Professor Lecturer	Shigeki Matsunaga Tatsuhiko Yoshino	synthetic organic chemistry, asymmetric catalysis, bimetallic cooperative catalysis, natural product synthesis, oligosaccharide synthesis based on new glycosidation method http://www.pharm.hokudai.ac.jp/yakuzou/

Biomedical and Pharmaceutical Science Course, Division of Science

Laboratory	Supervisors		Research Topics
Organic Chemistry for Drug Development	Professor Lecturer	Satoshi Shuto Mizuki Watanabe	medicinal chemistry: drug design http://www.pharm.hokudai.ac.jp/youki/index.html
Pharmacology	Professor Lecturer Lecturer	Masabumi Minami Taiju Amano (Hiroshi Nomura) ※	neuropharmacology, electrophysiology, emotion, pain, addiction, BBB http://www.pharm.hokudai.ac.jp/yakuri/index.html
Molecular Design of Pharmaceutics	Professor (Associate Professor)	Hideyoshi Harashima (Yuma Yamada)※	drug delivery system, organelle-targeting, nanomedicine, gene delivery, siRNA delivery, intracellular trafficking, imaging, vaccine, cancer therapy http://www.pharm.hokudai.ac.jp/yakusetu/index.html
(Innovative Nanomedicine)	Professor	Hideyoshi Harashima	vascular-targeted drug delivery, nanomedicine, active targeting, tumor, liver, adipose tissue, specific ligand http://www.pharm.hokudai.ac.jp/mirai/
Molecular Imaging	(Professor) Lecturer	(Mikako Ogawa)※ Hideo Takakura	molecular imaging, imaging probe, PET, optical imaging, MRI
Center for Research and Education on Drug Discovery (Synthetic Drug Discovery)	Professor Lecturer	Satoshi Ichikawa Fumika Yakushiji	organic synthesis, natural products, drug discovery, chemical library screening, in silico screening, intractable disease, chemical biology https://japanese-apricot.pharm.hokudai.ac.jp/gouseiyaku/index.php
Center for Research and Education on Drug Discovery (Biologics and Drug Development)	Professor Specially Appointed Associate Professor	Katsumi Maenaka Naoyoshi Maeda	biologics, drug discovery, chemical library screening, in silico screening, intractable disease, http://japanese-apricot.pharm.hokudai.ac.jp/

※ Specialized Professor of Division of Clinical Pharmacy

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Doctoral Course

Division of Soft Matter, Graduate School of Life Science

Laboratory	Supervisors		Research Topics
Soft Matter Materials Science	Professor Professor Associate Professor	Jian Ping Gong Takayuki Kurokawa Tasuku Nakajima	Polymer gel, Double network gel, Soft & wet matter, Sacrificial bond, High strength, High toughness, Composite, Friction, Lubrication, Liquid crystal, Structure color, Self-organization, Biomaterial, Artificial cartilage, Cell scaffold http://altair.sci.hokudai.ac.jp/g2/index_e.html
	Professor Associate Professor	Kuniharu Ijiro Hideyuki Mitomo	Self-organization, self-assembly, biomimetics, functional device, biosensor, DNA, protein, biomolecule, cell, molecular recognition, drug delivery system, vaccine, gold nanoparticle, surface plasmon, stimulus-response, nanocapsule https://chem.es.hokudai.ac.jp/en/
Biomolecular Soft Matter	Professor Lecturer	Makoto Demura Takashi Kikukawa	Peptides, proteins, membrane proteins, functional analysis, NMR, photobiology, rhodopsin, photoactive proteins, biomimicry, biomaterials, soft matters, bioinformatics, ion transport, membrane transporters, SDGs http://altair.sci.hokudai.ac.jp/infana/
	Professor	Tomoyasu Aizawa	Protein science, structural biology, protein engineering, NMR, metabolome, biomarker research, biological defense, innate immunity, antimicrobial peptides, cytokines, microbiological control http://altair.sci.hokudai.ac.jp/g5/
Soft Matter Biophysics	Professor	Hisashi Haga	Cell Mechanics, Collective Cell Behavior, 3D Morphogenesis, Cancer Invasion, Atomic Force Microscopy http://altair.sci.hokudai.ac.jp/g3/
	Professor Associate Professor	Toshiyuki Nakagaki Katsuhiko Sato	ciliate, amoeba, slime mold, protozoa, nematode, live cell imaging, field work, evolutionary ecology, biomechanics, locomotion, memory and learning, mathematical modeling, computer simulation, nonlinear dynamics, active soft matter, Belousov-Zhabotinski reaction, pattern formation, scaling theory, network of biochemical reactions http://pel.es.hokudai.ac.jp/index-en.html

Division of Soft Matter, Graduate School of Life Science

Laboratory	Supervisors		Research Topics
Soft Matter Medical Science	Associate Professor	Masumi Tsuda	biomaterial, cancer stem cell, molecular targeted therapy, regenerative medicine, cartilage regeneration, neuroregeneration http://patho2.med.hokudai.ac.jp
	Lecturer	Tomohiro Onodera	Orthopaedic Surgery, Joint Surgery, Regenerative Medicine, Musculoskeletal System, Animal Model, Scaffold, Cartilage, Bone, Meniscus, Biomaterials, Soft Matter, Clinical Application, Translational Research http://www.hokudaiseikei.jp/
Functional Soft Matter Inter-Field Cooperation with National Institute for Materials Science (NIMS)	Visiting Professor Visiting Associate Professor	Takashi Nakanishi Takeshi Ueki	molecular liquid, ionic liquid, polymer gel, block copolymer, stimuli-responsive materials, optoelectronic function, self-assembly, dynamic biomimetics, sensor, actuator https://www.nims.go.jp/hokudai/index_en.html https://www.nims.go.jp/hokudai/research_seimei_en.html#labo2pb

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